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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,522	02/10/2004	Matthew G. Goodman	ASMEX.433A	1057
20995 7590 06/06/2007 KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614			EXAMINER MACARTHUR, SYLVIA	
			ART UNIT 1763	PAPER NUMBER
			NOTIFICATION DATE 06/06/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	Application No. 10/775,522	Applicant(s) GOODMAN ET AL.	
	Examiner Sylvia R. MacArthur	Art Unit 1763	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 March 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 and 38-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 38-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see pages 4-6, filed 3/9/2007, with respect to Kurita (US 2005/0016454), Asakura (US 2002/0166509), Satoh (US 6, 435,798), and Lee (US 5,842,690) have been fully considered and are persuasive. The rejections using these as a basis has been withdrawn. It is noted that Kurita fails to teach process gas treating both sides of the substrate when the substrate is loaded onto the upper plate 54, the wafer can no be loaded onto guide ring 54 due to the tapered guide surface 60 of Asakura, the substrate supporting members 12 of Satoh are not fixed relative to the susceptor, and Lee does not meet the means plus function language of the first and second means for "directly supporting" the substrate.
2. It is noted that claims 1 and 38 were amended to recite that the second load platforms/means directly supports the wafer. This amendment necessitated the introduction of the prior art of Arai (US 2003/0075109) and the prior art of Nguyen et al (US 6,221,166).

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 1763

4. Claims 1-3,5-8, 10,11, 38, 42, and 43 are rejected under 35 U.S.C. 102(e) as being anticipated by Arai (US 2003/0075109).

Arai teaches a vapor phase growth apparatus.

Regarding claim 1: Arai teaches an apparatus for processing a substrate comprising a frontside and a backside used in the fabrication of an integrated device, the apparatus comprising a reaction chamber 11, a first load platform (lift pins 13), and a second load platform (susceptor 12), wherein: the first load platform and the second load platform are disposed within the reaction chamber;

the first load platform is configured to permit a process gas to contact both the frontside and backside of a substrate loaded on the first load platform; each of the first and second load platforms is dimensioned and configured to directly support the substrate; the first load platform is mounted outside of the second load platform (on the chamber floor, see Fig.1); and the first load platform is fixed relative to the second load platform. The lift pins are fixed while the susceptor is rotated and vertically moved by shaft 14, see Fig. 1.

Regarding claim 2: The apparatus of claim 1, wherein the first load platform is higher than the second load platform, see Fig. 1.

Regarding claim 3: The apparatus of claim 2, wherein the first load platform is substantially directly above the second load platform, see Fig. 1.

Art Unit: 1763

Regarding claim 5: The apparatus of claim 1, wherein the first load platform comprises a plurality of support pins, see pins 13a.

Regarding claim 6: The apparatus of claim 5, wherein the first load platform comprises three support pins, see [0030] of Arai.

Regarding claim 7: The apparatus of claim 5, wherein the support pins are made from a material silicon carbide according to [0023] of Arai.

Regarding claim 8: The second load platform is susceptor 12.

Regarding claim 10: The apparatus of claim 8, wherein the reaction chamber is configured to deposit epitaxial silicon on a substrate loaded on the second load platform. This is a matter of intended use and does not structurally limit the claims. The apparatus of Arai is inherently capable of performing this deposition process.

Regarding claim 11: The apparatus of claim 1, further comprising a heat source. The chamber further comprises heat sources (IR lamps 16), see [0028].

Regarding claim 38: An apparatus for processing a substrate comprising a frontside and a backside used in the fabrication of an integrated device, the apparatus comprising: a reaction chamber; a first means for directly supporting the substrate during

Art Unit: 1763

processing; and a second means for directly supporting the substrate during processing. The citations of the first means for directly supporting the substrate and the second means for directly support a substrate has invoked 112/6<sup>th</sup> paragraph (means plus function). The examiner interprets the “first means” according to the specification and drawing as support pin 110 or slip ring 130 and the “second means” as susceptor 120. The prior art of Arai provides pins 13 which read on the first means and susceptor 12 which read on the second means as both are configured to provide the function of directly supporting the substrate.

Regarding claim 42: The apparatus of claim 41, wherein at least a portion of the first means of supporting the substrate during processing is movable via moving means P.

Regarding claim 43: The apparatus of claim 38, wherein the second means of supporting the substrate during processing comprises a susceptor 12.

5. Claims 38-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Nguyen et al (US 6,221,166).

Nguyen et al teaches a multi-thermal zone shielding apparatus.

Regarding claim 38: Nguyen et al teaches an apparatus for processing a substrate comprising a frontside and a backside used in the fabrication of an integrated device, the apparatus comprising: a reaction chamber; a first means for directly supporting the substrate during processing; and a second means for directly supporting the substrate during processing, see Fig.

4. The citations of the first means for directly supporting the substrate and the second means for directly support a substrate has invoked 112/6<sup>th</sup> paragraph (means plus function). The examiner

Art Unit: 1763

interprets the “first means” according to the specification and drawing as support pin 110 and/or ring 130 and the “second means” as susceptor 120. The prior art of Nguyen et al provides support pins 182 and ring 150 which read on the first means and susceptor 130 which read on the second means as both are configured to provide the function of directly supporting the substrate.

Regarding claim 39: The apparatus of claim 38, wherein the first means of supporting the substrate during processing comprises at least one movable element (shield support 172).

Regarding claim 40: The apparatus of claim 38, wherein the first means of supporting the substrate during processing comprises a support ring (shield 150).

Regarding claim 41: The apparatus of claim 38, wherein at least a portion of the first means of supporting the substrate during processing is mounted to a slip ring (shield 150).

Regarding claim 42: The apparatus of claim 41, wherein at least a portion of the first means of supporting the substrate during processing is movable via shield support 172.

Regarding claim 43: The apparatus of claim 38, wherein the second means of supporting the substrate during processing comprises a susceptor 130.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arai.

The teachings of Arai were discussed above. Arai fails to teach the distance of the first load platform relative to the second load platform. The relative distance of the first and second load platform affects the ease of transferring the substrate between platforms and ensures the bending and slippage of the wafer is hindered. It is the examiner's position that the determination of the optimal relative distance is a matter of obviousness and could be determined without undue experimentation. Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to have determined the optimum values of the relevant process parameters through routine experimentation in the absence of a showing of criticality, *In re Aller*, 220 F. 2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arai in view of Nguyen et al.

The teachings of Arai were discussed above.



Art Unit: 1763

Arai fails to teach wherein the second load platform, the susceptor further comprises a heat source. Nguyen et al, Fig. 4 depicts a susceptor that further comprises a heat source 131 within it. The motivation to modify the susceptor of Arai with a heat source as taught by Nguyen et al is that the embedded heat source allows for more uniform heating of the substrate and better temperature control. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide the susceptor of Arai with a heat source.

### *Conclusion*

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-Th during the hours of 8 a.m. and 4:30 p.m..

Art Unit: 1763

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Sylvia R MacArthur  
Primary Examiner  
Art Unit 1763

May 29, 2007